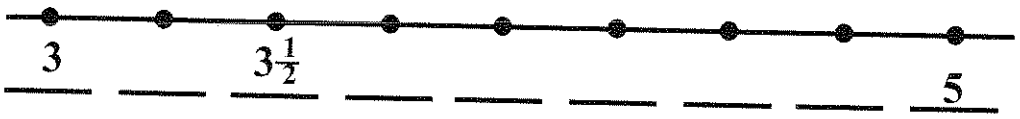
Fraction Sequences

The numberline is a powerful and valuable tool in mathematics. Fraction Sequences utilize a numberline setting for the problems to be solved. Consider the following task. Students are asked to complete the sequence of numbers by filling the blanks. The same number is to be added each time.



What is the Pattern? _____

The numberline above the blanks helps to define the nature of the task. In order to determine the number that would go between 3 and 3 1/2, students look for a number that would be halfway between them. Having worked previously with Fraction Bars, it is possible for them to reason that 3 1/4 is halfway since 3 + 1/4 = 3 1/4 and 1/4 + 1/4 = 1/2 so 3 1/4 + 1/4 = 3 1/2. As they continue this pattern, the 5 1/2 serves as a check number.

There are eight pages of Fraction Sequences that provide rich opportunities for students to give meaning to fractions as numbers in a set with whole numbers.. Thus they are building the set of rational numbers. Page one of the set focuses on halves and fourths. The problems become increasingly more demanding on subsequent pages.

Work one of the Fraction Sequence problems with the class so that are clear on the nature of the task. It is strongly recommended that you have students work in pairs (Problem Centered Learning). Provide time for students to explain their reasoning to the class. The whole class discussion presents many learning opportunities. Some of the pages may be used as homework.

Fraction Sequence Key

Page 1 # 1:
1/2, 1 1/2, 2, 2 1/2, 3 1/2, 4
Change = **1/2**

Page 1 # 2:
2 3/4, 3 1/4, 3 3/4, 4, 4 1/4, 4 3/4
Change = **1/4**

Page 1 # 3:
4 3/4, 5 3/4, 6 3/4, 7 1/4, 7 3/4, 8 1/4
Change = **1/2**

Page 1 # 4:
3 1/2, 4, 4 1/2, 5 1/2, 6, 6 1/2
Change = **1/2**

Page 1 # 5:
1 1/2, 2, 3, 3 1/2, 4, 4 1/2
Change = **1/2**

Page 1 # 6:
1 4/5, 2 1/5, 2 2/5, 2 3/5, 2 4/5, 3 1/5
Change = **1/5**

Page 1 # 7:
3 1/8, 3 1/4, 3 3/8, 3 5/8, 3 3/4, 3 7/8
Change = **1/8**

Page 2 # 1:
6 1/2, 7 1/2, 8, 8 1/2, 9 1/2, 10
Change = **1/2**

Page 2 # 2:
11 1/4, 11 3/4, 12, 12 1/4, 12 1/2, 12 3/4
Change = **1/4**

Page 2 # 3:
5 2/3, 6 1/3, 7, 7 1/3, 7 2/3, 8 1/3
Change = **1/3**

Page 2 # 4:
6 1/2, 9 1/2, 11, 12 1/2, 15 1/2, 17
Change = **1 1/2**

Page 2 # 5:
0, 5, 7 1/2, 10, 12 1/2, 17 1/2
Change = **2 1/2**

Page 2 # 6:
2 1/8, 2 3/8, 2 1/2, 2 5/8, 2 3/4, 3
Change = **1/8**

Page 2 # 7:
5/6, 1 1/6, 1 1/2, 1 2/3, 1 5/6, 2
Change = **1/6**

Page 3 # 1:
5 3/4, 6 1/4, 6 3/4, 7 1/4, 8 1/4, 9 1/4
Change = **1/2**

Page 3 # 2:
0, 1/2, 1, 1 1/4, 1 1/2, 2
Change = **1/4**

Page 3 # 3:
4 1/6, 4 1/3, 4 1/2, 4 2/3, 4 5/6, 5 1/6
Change = **1/6**

Page 3 # 4:
3/5, 7/10, 4/5, 9/10, 1 1/10, 1 3/10
Change = **1/10**

Page 3 # 5:
4 1/2, 7 1/2, 9, 10 1/2, 13 1/2, 16 1/2
Change = **1 1/2**

Page 3 # 6:
2 7/8, 3 1/8, 3 3/8, 3 1/2, 3 5/8, 3 3/4
Change = **1/8**

Page 3 # 7:
4 2/3, 5 1/3, 5 2/3, 6, 6 1/3, 7
Change = **1/3**

Page 4 # 1:
9 1/2, 13, 16 1/2, 23 1/2, 27, 30 1/2
Change = **3 1/2**

Page 4 # 2:
7 1/2, 8, 8 1/2, 8 3/4, 9 1/4, 9 1/2
Change = **1/4**

Page 4 # 3:
6 1/4, 6 3/4, 7 3/4, 8 3/4, 9 1/4, 9 3/4
Change = **1/2**

Page 4 # 4:
3 1/2, 5, 6 1/2, 7 1/4, 8, 9 1/2
Change = **3/4**

Page 4 # 5:
1 3/8, 2 1/8, 2 1/2, 2 7/8, 3 1/4, 4
Change = **3/8**

Page 4 # 6:
1 1/8, 4 1/8, 7 1/8, 8 5/8, 10 1/8, 13 1/8
Change = **1 1/2**

Page 4 # 7:
1 1/8, 1 3/4, 3, 4 1/4, 4 7/8, 6 1/8
Change = **5/8**

Page 5 # 1:
3/4, 1 1/2, 1 7/8, 2 1/4, 3, 3 3/4
Change = **3/8**

Page 5 # 2:
1 1/10, 1 7/10, 2, 2 3/10, 2 3/5, 3 1/5
Change = **3/10**

Page 5 # 3:
3/4, 2, 2 5/8, 3 1/4, 3 7/8, 5 1/8
Change = **5/8**

Page 5 # 4:
4 1/4, 5, 5 3/4, 6 1/2, 7 1/4, 8 3/4
Change = **3/4**

Page 5 # 5:
1, 2 3/4, 3 5/8, 4 1/2, 5 3/8, 7 1/8
Change = **7/8**

Page 5 # 6:
1 2/3, 3, 3 2/3, 4 1/3, 5 2/3, 6 1/3
Change = **2/3**

Page 5 # 7:
1 7/8, 4 3/8, 5 5/8, 8 1/8, 9 3/8, 10 5/8
Change = **1 1/4**

Page 6 # 1:
3/5, 2 1/5, 3 4/5, 4 3/5, 5 2/5, 6 1/5
Change = **4/5**

Page 6 # 2:
1 5/8, 2 3/8, 2 3/4, 3 1/8, 3 1/2, 4 1/4
Change = **3/8**

Page 6 # 3:
1, 1 5/8, 2 7/8, 4 1/8, 4 3/4, 5 3/8
Change = **5/8**

Page 6 # 4:
5 3/4, 6 5/8, 8 3/8, 9 1/4, 10 1/8, 11 7/8
Change = **7/8**

Page 6 # 5:
3/4, 5 3/4, 8 1/4, 13 1/4, 15 3/4, 18 1/4
Change = **2 1/2**

Page 6 # 6:
1/2, 1 5/6, 3 1/6, 3 5/6, 4 1/2, 5 1/6
Change = **2/3**

Page 6 # 7:
2 3/4, 3 1/2, 4 1/4, 5 3/4, 6 1/2, 7 1/4
Change = **3/4**